

***A proposal for a National REDD Pact
based on performance: Target, forest
Stock & deforestation Reduction***

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[The challenge]

75% Brazilian CO₂ emissions
related to DEFORESTATION

~ 720 MtCO₂/YEAR

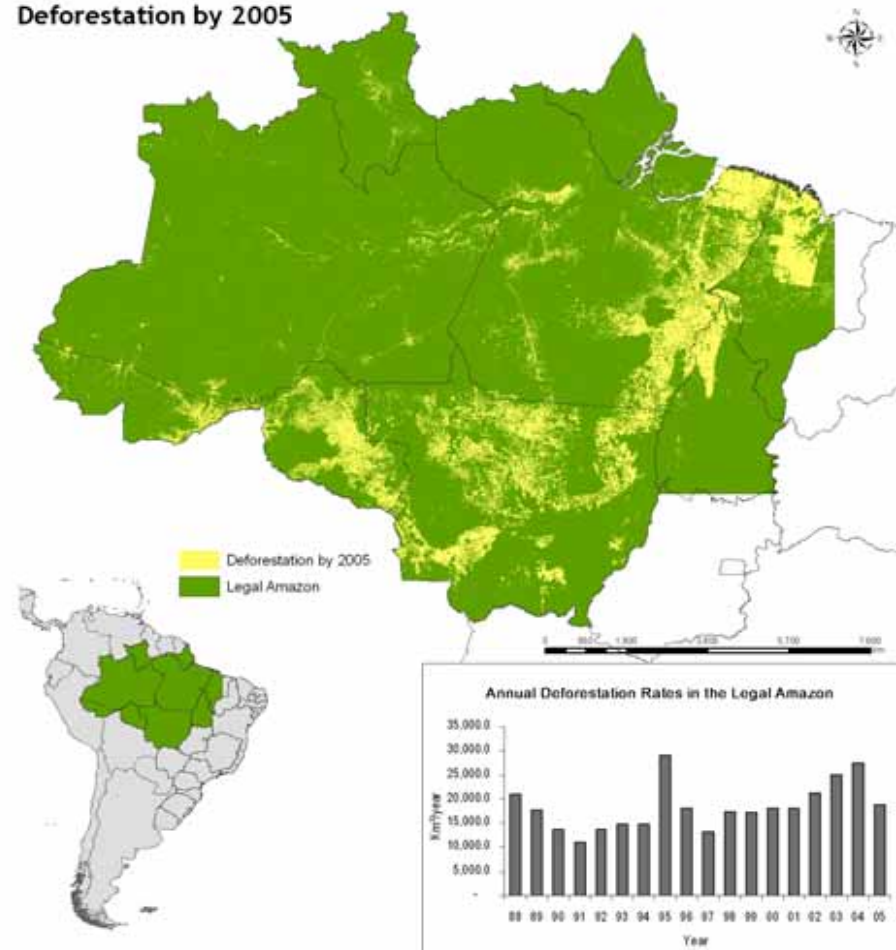
>50% = Deforestation

1,95 M HECTARES/YEAR

65 M ha DEFORESTED

18% BRAZILIAN AMAZON

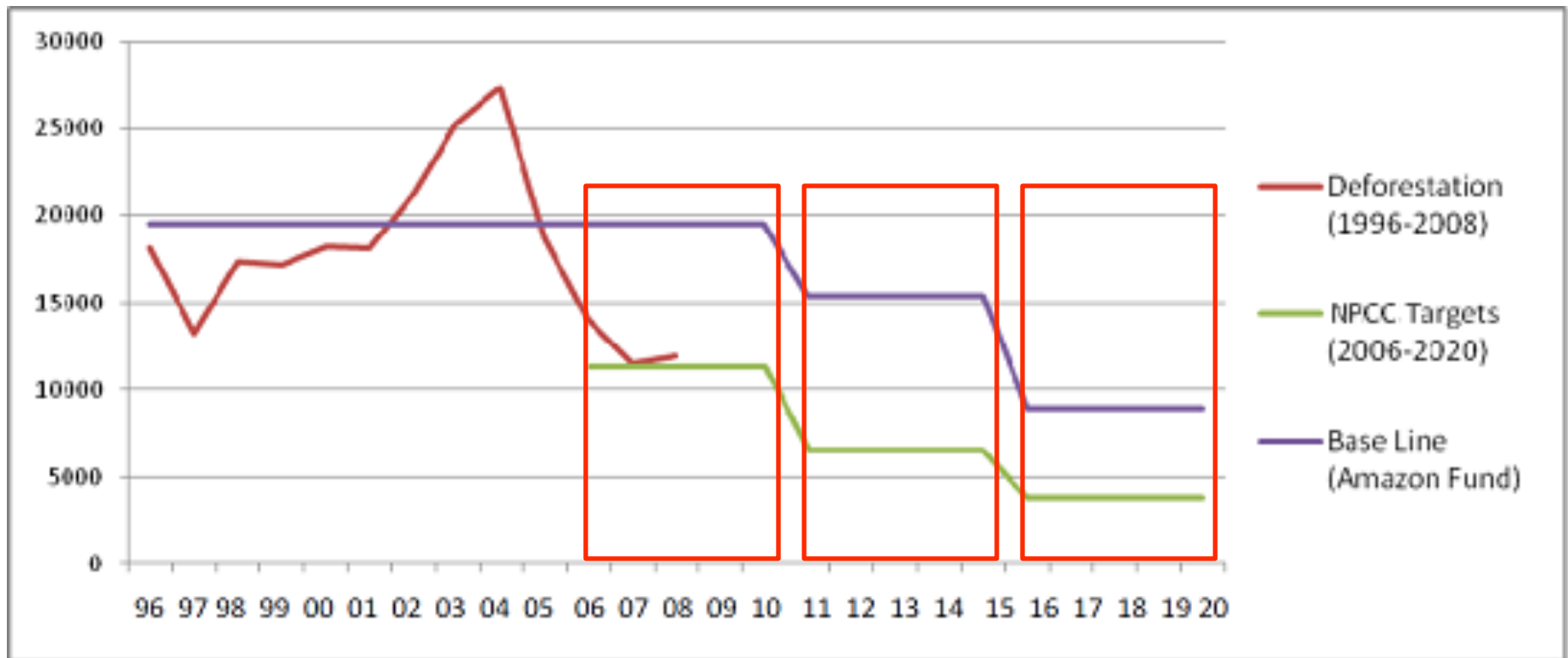
Deforestation by 2005



[Opportunities]

- National Action Plan to Prevent and Control Deforestation in the Amazon (since 2004)
- National Plan on Climate Change – voluntary targets for emissions reduction from deforestation in the Amazon (<80% up to 2020)
- Amazon Fund, a voluntary-based mechanism that receives donations in order to compensate deforestation reduction and invest in prevention and control
- Amazon States start to develop State Plans to prevent and control Deforestation in the Amazon

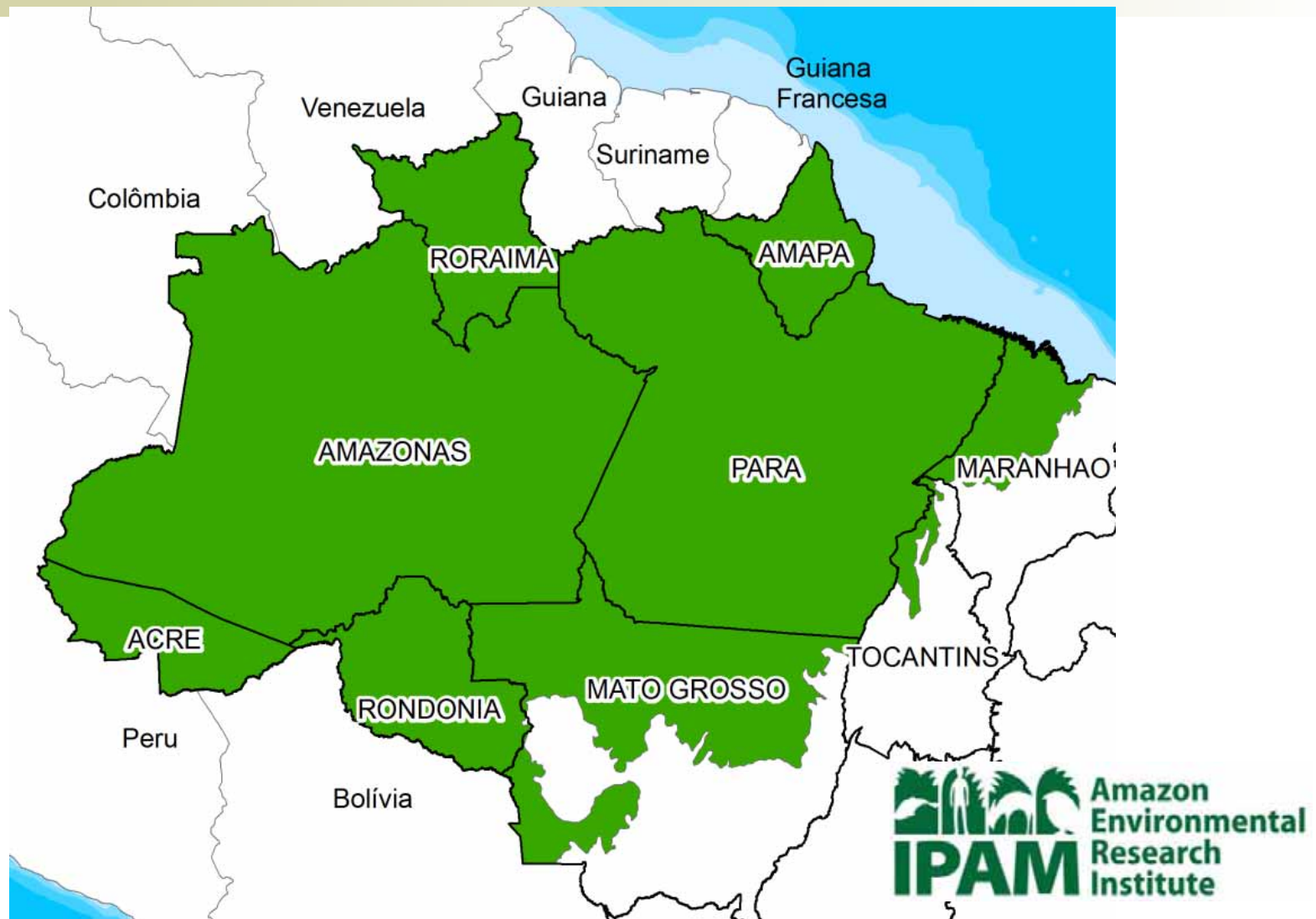
Annual rates & NPCC targets



[The questions]

- A fundamental question for an effective implementation of REDD in large scale in the Amazon is:
- How can a fair and equitable system for sharing financial benefits work from the international REDD mechanism down to sub-national and local (project based) initiatives?
- How to strengthen the Amazon states and local society engagement within the National REDD strategy?

[The Amazon States]



[How to get there ?]

- Creating an Amazon mechanism to share REDD financial incentives considering sub-national efforts-performance related to:
 - (a) deforestation reduction,
 - (b) target accomplishment, and
 - (c) forest stock conservation.

Simulation



Three criteria based on performance by state:

- 1 – Deforestation reduction and the opportunity cost of it.
- 2 – The forest stock remaining and an estimated cost of protecting it
- 3 – The achievement of voluntary state target integrated to the NPCC targets

We considered the real deforestation rates from 2006 to 2008 verified by the National Institute for Space Resoucers (INPE)

[1st step



■ Defining the total amount (TA) of incentives

Table 1. Deforestation emissions reduction verified between 2006 and 2008 considering the baseline established by the Amazon Fund*

	2006	2007	2008	Total
Deforestation Reduction (km ²)	5,461	7,968	7,532	20,961
CO ₂ reduction (ton)	199,872,600	291,628,800	275,671,200	767,172,600

* One hectare corresponds to 366 tCO₂e (Amazon Fund value).

50% of the total reduction at a price of US\$10/tCO₂ (Eliasch, 2008)

$$TA = \text{US\$ } 3,83 \text{ bi}$$

[2st step



- Defining the total value of compensation for deforestation reduction (CR) to be shared among states
- Opportunity cost of US\$ 350/ha/year or US\$3.5/tC (Nepstad, 2007)
- Total of compensated reduction (CR) = US\$ 732 M

Baseline & deforestation 2006/08 (km²)

States/Year	BL	2006	2007	2008
Acre	583	323	184	222
Amapá	16	30	39	0
Amazonas	868	780	610	479
Maranhão	942	651	613	1,085
Mato Grosso	7,657	4,333	2,678	3,259
Pará	6,169	5,505	5,425	5,180
Rondônia	2,771	2,062	1,611	1,061
Roraima	241	231	309	570
Tocantins	261	124	63	112
Total Amazon	19,508	14,039	11,532	11,968

Total \$ for deforestation reduction per state from 2006 to 2008

State	Reduction	%
Acre	34,680	5%
Amazonas	24,990	3%
Amapá	0	0%
Maranhão	21,080	3%
Mato Grosso	431,834	59%
Pará	81,498	11%
Rondônia	121,686	17%
Roraima	340	0,05%
Tocantins	16,456	2%
total	732,564	100

3st step



- Defining the amount (\$) for remaining forest stock (FS) and per-target (PT) achievement by:

(a) Defining a factor (f) of 60% for FS and 40% for PT

$$(b) FS = (TA - CR) \times 0,6 = \text{US\$ } 1,86 \text{ bi}$$

$$(c) PT = (TA - CR) \times 0,4 = \text{US\$ } 1,24 \text{ bi}$$

Variation of forest stock from 06/08 (km2)

State	2005	2006	2007	2008
Acre	138,423	138,100	137,916	137,694
Amazonas	1,386,880	1,386,100	1,385,490	1,385,011
Amapá	78,830	78,800	78,761	78,761
Maranhão	34,351	33,700	33,087	32,002
Mato Grosso	327,533	323,200	320,522	317,263
Pará	797,705	792,200	786,775	781,595
Rondônia	133,962	131,900	130,289	129,228
Roraima	132,231	132,000	131,691	131,121
Tocantins	10,324	10,200	10,137	10,025
Total	3,040,239	3,026,200	3,014,668	3,002,700

Total US\$t compensation FS from 2006/08)

State	US\$ th	%
Acre	85,199	4,6%
Amazonas	856,088	46,0%
Amapá	48,673	2,6%
Maranhão	20,303	1,1%
Mato Grosso	197,762	10,6%
Pará	485,878	26,1%
Rondônia	80,531	4,3%
Roraima	81,296	4,4%
Tocantins	6,249	0,3%
total	1,861,979	100.00

Targets performance by state (2006-2008)

States/Year	1st year(06)	2nd year(07)	3rd year(08)
Acre	-44.60%	-68.44%	-61.92%
Amazonas	-10.14%	-29.72%	-44.82%
Amapá	87.50%*	143.75%*	-100.00%*
Maranhão	-30.89%	-34.93%	15.18%
Mato Grosso	-43.41%	-65.03%	-57.44%
Pará	-10.76%	-12.06%	-16.03%
Rondônia	-25.59%	-41.86%	-61.71%
Roraima	-4.15%	28.22%	136.51%
Tocantins	-52.49%	-75.86%	-57.09%
Total Amazon	-28.03%	-40.89%	-38.65%

* Deforestation rate < 0,5% of total deforestation
(Amapá)

Distribution of US\$t PT from 2006-2008

State	US\$ th	%
Acre	249,770	20
Amazonas	73,766	6
Amapá	249,770	20
Maranhão	0	0
Mato Grosso	249,770	20
Pará	0	0
Rondônia	168,475	14
Roraima	0	0,00
Tocantins	249,770	20
total	1,241,320	100

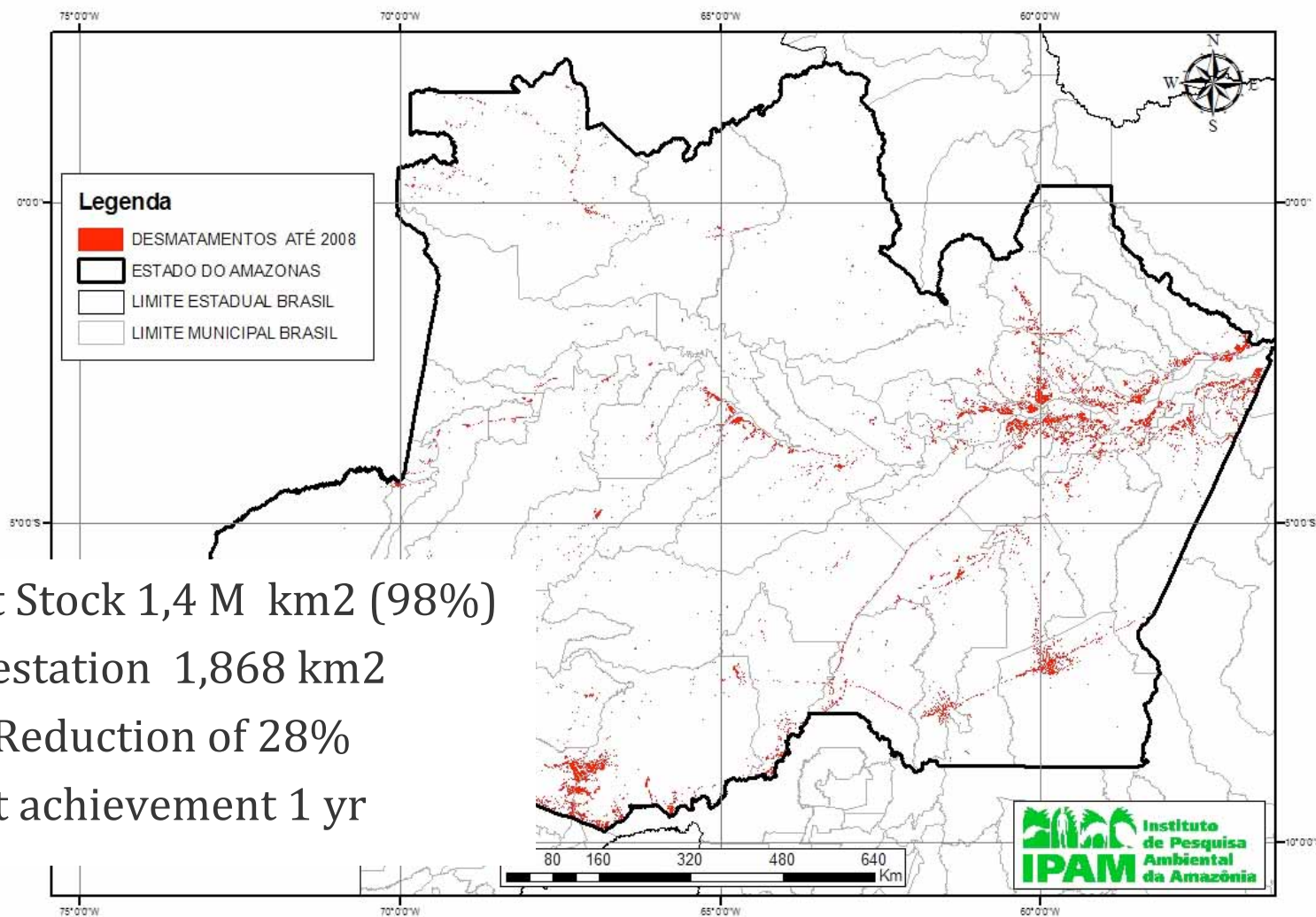
[Result



Table 2. Simulation of REDD benefit distribution among Brazilian Amazon States (Fig 2) by the Target, Stock & Deforestation Reduction approach.

State	REDD compensation (USD X 1000)				%
	for target	for stock	for reduction	total	
Amazonas	73,766	856,088	24,990	954,844	25
Mato Grosso	249,770	197,762	431,834	879,365	23
Pará	0	485,878	81,498	567,376	15
Rondônia	168,475	80,531	121,686	370,692	9.7
Acre	249,770	85,199	34,680	369,649	9.6
Amapá	249,770	48,673	0	298,442	7.8
Tocantins	249,770	6,249	16,456	272,475	7.1
Roraima	0	81,296	340	81,636	2.1
Maranhao	0	20,303	21,080	41,383	1.1
total	1,241,320	1,861,979	732,564	3,835,863	100

Amazonas



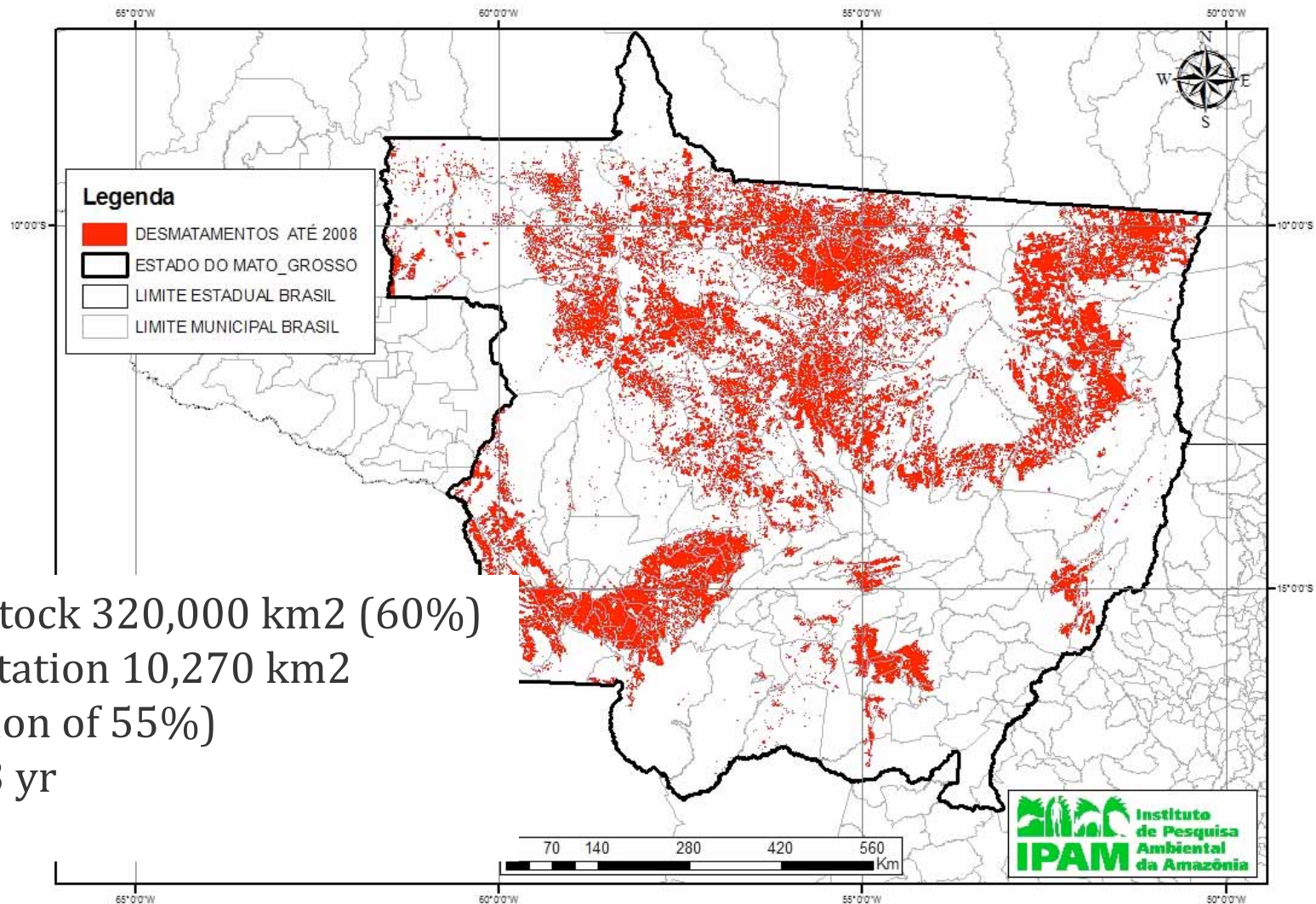
Forest Stock 1,4 M km² (98%)

Deforestation 1,868 km²

Total Reduction of 28%

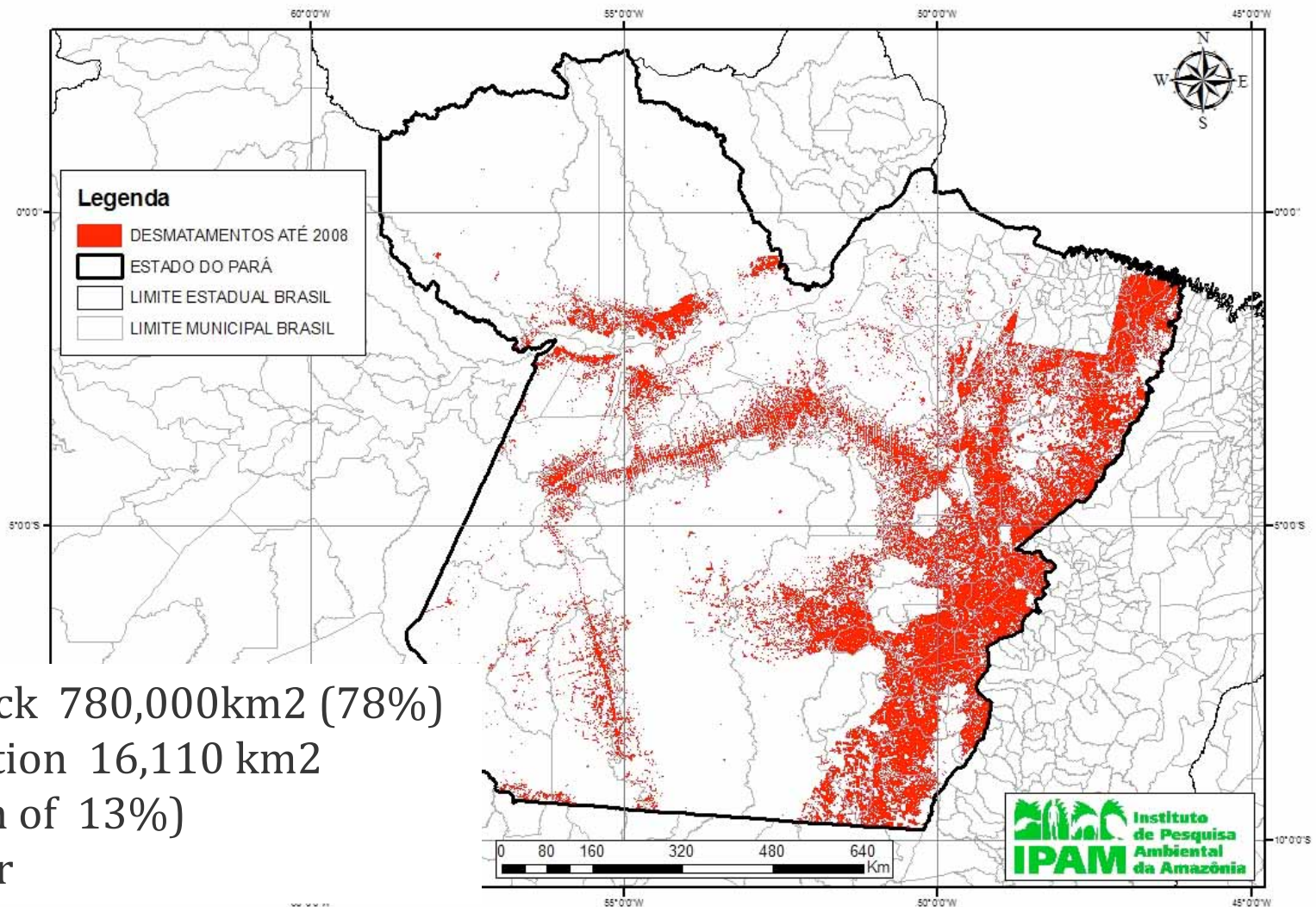
Target achievement 1 yr

Mato Grosso



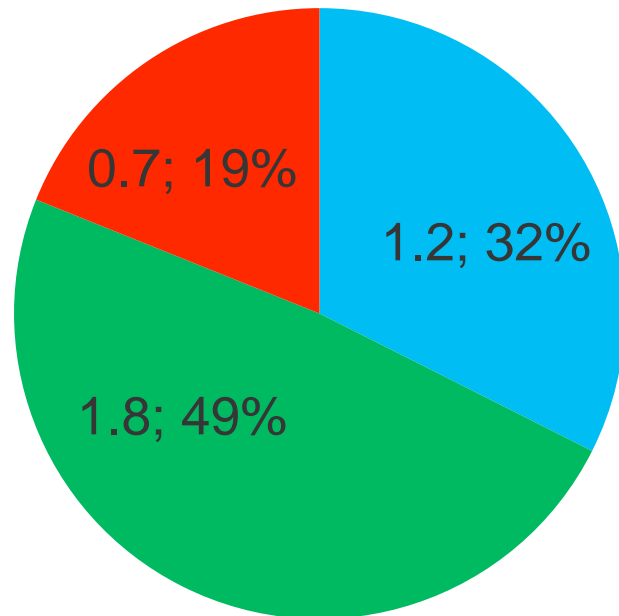
Forest stock 320,000 km² (60%)
Deforestation 10,270 km²
(reduction of 55%)
Target 3 yr

Pará



Forest stock 780,000km² (78%)
Deforestation 16,110 km²
(reduction of 13%)
Target 0 yr

[Result (US\$;%)



■ Target
■ Stock
■ Reduction

51% related to
deforestation
reduction

49% related to
forest stock
conservation

[Key final points]

- It's necessary to improve the engagement of sub-national efforts in to the national REDD strategy
- A performance based sistem to recognize and reward actions in the states and sub-national efforts can be an effective step to strengthen tha National REDD strategy (NPCC)

[Key final points]

- An important challenge is the development of a framework to link local projects performance to the states system for benefit sharing
- By transacting 50% of NPCC targets for deforestation reduction into the carbon market Brazil is voluntarily contributing to avoid 2G tCO₂ emissions from 2006 to 2020 and raising US\$ 20,2B

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